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THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

of the

VILLAGE OF THAMESVILLE

COUNTY OF KENT

1968

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Report on a water pollution
survey of the village of
Thamesville, county of Kent.
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REPORT

ON A

WATER POLLUTION SURVEY

OF THE

VILLAGE OF THAMESVILLE

COUNTY OF KENT

JUNE 1968

DISTRICT ENGINEERS BRANCH

DIVISION OF SANITARY ENGINEERING

ONTARIO WATER RESOURCES COMMISSION

REPORT

A water pollution survey of water quality in surface-water drains, storm sewers and watercourses within the Village of Thamesville, was conducted on June 5, 1968.

Mr. N.S. Dickson, Clerk-Treasurer, provided information pertinent to the survey.

GENERAL

The Village of Thamesville, with an assessed population of 1026 (1968 Municipal Director) is located at the junction of Highways No. 2 and 21, in the north-west section of Kent County. Municipal assessment is mainly residential and commercial with some light industry.

DRAINAGE

The village is situated within the Thames River Watershed. Surface water drainage for the area is provided by the Cornwall Creek and the Cruickshank drain. The Cruickshank drain services a north-east section of the village and the Cornwall Creek services the remaining areas.

WATER SUPPLY

A non-potable municipal water works is maintained in operation. The system was initially instituted for fire protection only, however, over a period of years approximately 200 services have been connected.

The water supply, which is obtained from Cornwall Creek, is reportedly used for toilet flushing and lawn watering only. It has been indicated however, in previous surveys that in many instances the water has been used for other domestic purposes such as for bath and wash waters, in kitchen utility sinks, and public wash room basins.

Potable water supplies are obtained from private sandpoint and shallow-dug types of wells.

Because of the proximity of private sewage disposal systems to the shallow type wells, it is possible that some water supplies could become contaminated by seepage and discharges from septic tank systems.

SEWAGE DISPOSAL

Private septic tank systems are used almost entirely for the treatment and disposal of sanitary sewage and domestic wastes. The installations and operation of these units are under the supervision of the Kent County Health Unit.

It is evident in some areas of the Village, particularly in the commercial and business sections, space is not available for the installation and operation of adequate field-tile disposal beds. Consequently direct drains have been installed through which inadequately treated sanitary sewage and other domestic wastes are discharged from septic tanks into surface-water drains and storm sewers.

INDUSTRIAL WASTE

There are no ~~wet~~-waste producing industries in the village.

REFUSE DISPOSAL

The Thamesville ~~ref~~use disposal site is located in Concession A, Lot 12, Township of Camden, approximately 1.0 miles west of the village and 0.5 miles north of Highway No. 2.

The site is in a depressed swampy area adjacent to a surface-water drain which flows in a southerly direction to discharge into the Thames River. It is probable that surface water runoff from the dump site gains access to this drain during high water periods.

WATER QUALITY

Surface Water Drainage System

As a measure in assessing the presence and degree of pollution in the surface water drainage system, water samples were collected where possible from the outfalls of municipal and private drains and submitted for sanitary chemical analyses and bacteriological examinations.

The location of sampling points are indicated on the accompanying plan of the village. The laboratory analyses of samples collected are listed in Table I.

INTERPRETATION OF ANALYSES

For convenience in the interpretation of the laboratory analyses, the Ontario Water Resources Commission water quality objectives for surface water drains and storm sewers are listed:

5-day BOD (Biochemical Oxygen Demand)

- not greater than 15 parts per million (ppm)

Suspended Solids

- not greater than 15 parts per million (ppm)

Coliforms (Membrane Filter)

- not greater than 2400 per 100 millilitres (ml)

Anionic Detergent

- the presence of Anionic Detergent usually indicates pollution from domestic sources.

SIGNIFICANCE OF LABORATORY ANALYSES

It is noted from the tabulated figures (Table I) that the sanitary chemical and bacteriological analyses of almost all samples collected from the surface-water drains are greatly in excess of the water quality objectives. These results therefore indicate that polluting materials are gaining access to the surface-water drains which in turn discharge into the watercourses.

The excessively high biochemical oxygen demand figures indicate the presence of large quantities of polluting materials which may be considered a major source of pollution of the receiving watercourse. The excessively high coliform counts, and the high concentrations of anionic detergent indicate that sanitary sewage, inadequately treated discharges from faulty septic tank systems, and

other domestic wastes, are the probable major sources of the polluting materials.

SUMMARY

A water pollution survey was conducted in the Village of Thamesville in June, 1968.

The findings of the survey confirm that polluting materials are being discharged into the watercourse (Cornwall Creek) from various municipal surface-water and private drains throughout the municipality. The extremely high BOD, coliform, and anionic detergent counts indicate that sanitary sewage, inadequately treated effluents from septic tank systems, and other domestic wastes, are the probable sources of the pollution.

These wastes are being discharged from residential and commercial properties on which satisfactory private sewage treatment is not being provided. The practice of discharging inadequately treated effluents from septic tanks, and polluting materials from any source, into a surface-water drain or watercourse constitutes a violation of Section 27, Subsection (1) of the Ontario Water Resources Commission Act which states:

"Every municipality or person that discharges or deposits or causes or permits the discharge or deposit of any material of any kind into or in any well, lake, river, pond, spring, stream, reservoir or other water or watercourse or on any shore or bank thereof or into or in any place that may impair the quality of the water of any well, lake, river, pond, spring, stream, reservoir or other water or watercourse is guilty of an offence and on summary conviction is liable to a fine of not more than \$1,000 or to imprisonment for a term of not more than one year, or to both."

RECOMMENDATIONS

In consideration of the findings of this water pollution survey, the following recommendation is presented:

(1) The Village of Thamesville should institute a pollution abatement programme. Such a programme to include the construction of a municipal sewage collector system and the provision of adequate means for sewage and waste treatment.

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Prepared by

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for

J. K. Ferris, Technician,
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TABLE I

VILLAGE OF THAMESVILLE - WATER POLLUTION SURVEYSURFACE WATER DRAINS - STORM SEWERSOUTFALLS TO CORNWALL CREEK

Sample No.	Description of Sampling Points	5-Day BOD (ppm)	SOLIDS (ppm)			Anionic Detergent as ABS(ppm)	Coliforms per 100 ml Membrane Filter
			Total	Susp.	Diss.		
TCO 37.85 W	Wallace Street South- west Corner of bridge	4.6	772	1	771	0.1	890
		3.2	974	4	970	0.1	10,000
TCO 37.82 W	Between Wallace and Ferguson Sts. (South side of Creek)	330.0	3904	3580	324	10.9	34,000,000
		390.0	3968	2824	1144	6.0	Broken
TCO 37.65 W	Lamila Street South- west Corner	180.0	1536	762	774	0.7	1,800,000
		470.0	3286	2242	1044	10.8	28,000,000
TCO 37.55 W	Ann Street South-East Corner	258.0	1234	61	1173	16.0	12,000,000
		150.0	1512	132	1380	3.2	23,600,000
TCO 37.45 W	Lemuel Street South- west Corner	415.0	2250	1296	954	70.0	75,000,000
		125.0	4512	1180	3332	19.8	145,000,000
TCO 37.35 W	Victoria Street South- west Corner	5.4	714	1	713	0.4	38,000
		8.4	788	4	784	1.5	630,000
TCO 37.25 W	West of Alice Street Rear of 128 Sherman St.	180.0	2228	1508	720	10.0	25,000,000
		620.0	3324	1848	1476	22.0	13,000,000
TCO 37.20 W	Sarah Street	38.0	1716	1408	308	0.5	840,000
		24.0	2122	702	1420	2.3	650,000
TCC 38.0 W	Jane Street at Graham Street outfall to Cruick- shank drain	11.0	734	5	729	3.8	2,500,000

APPENDIX

IMPLEMENTATION OF WATER AND SEWAGE WORKS PROGRAMMES

Currently, there are three general methods which may be utilized for implementing sewage and water works programmes. These are: (1) to enter into an agreement with the OWRC for the construction of the treatment and collector works with an obligation to pay the debt retirement and operating charges over the term of the agreement with the facility reverting to the municipality at the end of the term of the agreement, (2) by requesting the provision of service from a Provincially-owned project, and (3) by proceeding with the construction independently and meeting capital costs by the sale of debentures.

OWRC/MUNICIPAL PROJECTS

For the construction of water and sewage works under agreement with this Commission, the works are provided and developed under Section 39 to 46 of the Ontario Water Resources Commission Act.

For this type of arrangement, the Commission utilizes a sinking fund and consequently the annual payments are based on a specific debt retirement period and the payments are unchanged for the period of the agreement. This type of project may be financed over a period of time up to a maximum of thirty years. The annual charges for projects constructed under this agreement are determined as follows:

1. Capital Repayment

As noted, OWRC financing is by the sinking fund method and an annual payment of approximately 2 per cent of the capital cost is required to retire a debt over a thirty-year period.

2. Interest

On new Commission projects, interest is calculated at the current rate.

3. Reserve Fund

To provide money for repairs and replacements, Section 40 of the Ontario Water Resources Commission Act provides for the establishment of a reserve fund by the Commission. It is important to note that this fund is established in the name of the municipality and the balance consequently earns interest. It has now been established by Commission minute that the reserve fund billing for each project shall continue only until the fund reaches an amount of ten times the initial annual billing and the reserve fund billing shall be re-imposed only when the fund has been depleted to 80 per cent or less of the maximum amount.

4. Operating Costs

Under OWRC agreement, the municipality is responsible only for the operating costs directly attributed to the project in the municipality. Therefore, no charges are made by the Commission for the services of head office personnel who are available as required to advise on the satisfactory operation and maintenance of the project.

PROVINCIALY-OWNED WORKS

In June, 1967, the Honourable J.R. Simonett, Minister of Energy and Resources Management, made an announcement which expanded the authorization of this Commission for the provision of water supply and sewage treatment facilities. This new programme allows the Commission to construct entire water and sewage works facilities for small municipalities. The capital costs of these can be amortized over a 40 year period.

A slight variation of this programme could be implemented in that the municipality may request that this Commission provide only the major water and sewage works facilities as Provincially-owned works, and develop the water distribution and sewage collector systems under the standard type of Commission project. It would appear that where applicable, it would be more advantageous for the municipality to proceed on the basis of requesting this Commission to develop entire systems as Provincially-owned works.

The associated cost of supplying these works, including amortization of capital costs, together with operating and maintenance charges, will be recovered by the sale of service to the affected municipalities by rates determined on a usage basis. These facilities will be wholly-owned by the Province of Ontario and the arrangements for service will be formalized by contracts between the Commission and the municipality concerned. The installations will be operated entirely at cost with appropriate provision for adjustment in rate.

DEVELOPMENT

If a municipality, after considering the alternatives, wishes this Commission to consider Provincially-financed projects, application forms should be completed and submitted together with a resolution of the municipal council. A draft of the suggested wording of the resolution is included with the application forms.

If the proposed works are to be built by the municipality on its own initiative or as a formal project under agreement with this Commission, it is required that the council retain a consulting engineer to prepare preliminary engineering reports on the proposed work. If a Provincial system is contemplated, no action should be taken with respect to retaining a consulting engineering firm as the Commission will designate a consulting engineer to carry out the Provincial portion of the work and it would be advantageous if the municipal portion be studied and reported on by the same engineer.

APPENDIX
COMMUNITY PLANNING

The need for effective planning has become more important today than ever before. Municipalities are being burdened with the rising costs of land and labour. Therefore, any project a community hopes to develop should be based on sound planning. Planning at all levels of government is essential but, community planning can be most effective if interest and initiative is generated at the local level. The enormous benefits accrued as a result of good planning can more than compensate for the initial investment.

Community planning can be described as an effort to control and direct development effectively. This can best be achieved through the development of an official plan. An official plan is the stated intention of the local authorities with respect to orderly development within the planning area, that is prepared and set forth with professional assistance and meets the requirements as set out by the Provincial Planning Act. An official plan can be a joint effort by a number of municipalities which have common basic characteristics and common problems, or one municipality can establish a plan on its own initiative.

Orderly development yields future economy in services. Development in the community can be retarded where an official plan does not exist. A plan provides, among other things, the framework

for the rational design of water and sewage works and also the extensions of mains and collector sewer systems.

A local council having decided to proceed with a programme of community planning definitely should contact the Ontario Department of Municipal Affairs. Through its many branches, information and guidance is provided to all interested parties.

